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appearance of their indwelling mind, and therefore is of moment for their future. It is difficult to foretell whether the American will continue forever the government that was well enough for a boys' academy in colonial times. The desire is unquestionably awakened in us to have universities that can stand with the greatest of the world; and the desire will in the end, I believe, lead us more and more to distrust external rule. Our present forms have served our nonage; the days of our ignorance have been winked at, but now we are commanded everywhere to repent. We shall hardly reproduce in haste the European models, with all their clear advertisement that they are scholars' commonwealths, are municipalities of science; and yet it can not be thought that we shall continue forever and without regret upon our present course. We shall in the end place less reliance upon commercial methods in discovering and bringing into harmony the choicest minds; the university will perceive that it must become for them a hospitable place, showing in its very laws and customs that it is a union of gifted persons sanely working together to increase the store of intelligence among men. It will feel that it must bestow on all who come within its walls the keys and freedom of a great city.—Professor George M. Stratton in the *Atlantic Monthly* for October.

CURRENT NOTES ON METEOROLOGY AND CLIMATOLOGY

BRITISH RAINFALL

THE forty-sixth annual volume of that unique publication, *British Rainfall* (1906), is at hand. Dr. H. R. Mill informs us, much to our regret, in his preface, that "the stationary condition of the available funds" has made it necessary for the editor to "divert a considerable part of his time from editorial duties to remunerative work." It is a great pity that the British Rainfall Organization, which is of such immense importance to the people of the British Isles, should suffer for lack of support. In this connection we note that His Majesty the King heads the subscription list. Dr. Mill points out that by means

of an automobile, kindly placed at his disposal by one of his regular observers, he was able to make inspections of several rainfall stations in a very much shorter time than would have been taken up had he traveled in any other way. The present volume of *British Rainfall* contains a discussion, by L. C. W. Bonacina, of "The Effects of Exposure to Wind upon the Amount of Rain caught by Rain Gauges, and the Methods of Protecting Rain Gauges from them," with a bibliography. We desire once more to call attention to Dr. Mill's study of "Heavy Falls on Rainfall Days in 1906," in which the cyclonic control of special rainfalls is discussed and illustrated. It would be well if for every state in the American union we had such studies each year.

LIGHT AND BACTERIA

DR. JOHN WEINZIRL has recently investigated anew "The Action of Sunlight upon Bacteria, with Special Reference to *Bacillus Tuberculosis*" (*Bull. Univ. New Mex., biol. ser.*, III., No. 12, 1907). The results obtained by previous investigators were, in the opinion of the writer of this paper, markedly and unfavorably affected by reason of the investigators' methods of exposing the organisms to sunlight, exposure under glass necessitating reflection and absorption of a large proportion of the sun's rays. By improved methods Dr. Weinzirl believes that he has come much nearer the truth. He finds the effect of sunlight much more powerful than previous results indicated. From two to ten minutes of direct exposure to sunlight is sufficient to kill the bacteria. This gives added emphasis to the advantage of a dry climate, like that of the western United States, where dryness and sunshine quickly destroy most bacteria. The importance of well lighted and ventilated houses is also emphasized. "The results by direct exposure of the bacteria indicate that sunlight is a much more powerful germicidal agent, and consequently a more important hygienic factor, than it has heretofore been considered; that the bacteria, when freely exposed, are killed in one fifth to one twentieth of the time formerly considered necessary."

PHENOMENAL RAINFALL IN SUVA, FIJI

The Quarterly Journal of the Royal Meteorological Society for July, 1907, contains a discussion of a phenomenal rainfall in Suva, Fiji, August 8, 1906, which came during a thunderstorm. Unfortunately, the exact amount had to be, in part, estimated, owing to the observer's having failed to measure the fall at intervals during the night. The measurements showed a fall of over 37 inches, without taking into account the overflow, which was an unknown quantity. The gauge was twenty-five feet above the ground, and the observer calculates that the total fall must have been fully 41 inches in about 13 hours. Considerable uncertainty naturally attaches to this record, but there can be no doubt that the rainfall was a very heavy one.

RAINFALL IN THE LAKE REGION

A STUDY of the average annual precipitation in the Lake region, by Professor Alfred J. Henry, of the United States Weather Bureau, appears in the *Meteorological Chart of the Great Lakes*, No. 1, 1907, and is illustrated by a chart. Measurements of rain and snow have now been made for a period of thirty-six years (1871-1906) at 21 stations. The period 1871-1906 is taken as the fundamental period. The total number of stations used was 107, all but 7 of which had more than ten years' observations. The records of ten years and over were generally reduced to the fundamental period. The total annual amount of rain and melted snow is about 31 inches. The increase in precipitation due to the presence of the Great Lakes is probably not more than 2 or 3 inches annually.

VARIATIONS IN LEVEL OF LAKE CHAD

The Scottish Geographical Magazine, August, 1907, summarizes the results of military reconnaissances undertaken in 1906 by the troops in the Lake Chad region, including notes obtained from the natives in regard to the changes of level of Lake Chad. There seems to be a twenty-year periodicity, and at the end of four or five twenty-year periods there seems to come an almost complete desiccation, and then a great rise of level. An old

native remembered a drying up which has been placed between 1828 and 1833, while in 1851, about twenty years later, the level was high. In 1906 the lake appears to have been very low.

ROUMANIAN METEOROLOGICAL WORK

A RECENT mail has brought renewed evidence of the excellent work which the Meteorological Institute of Roumania is carrying on. As lately reported in *SCIENCE*, M. Stefan C. Hepites has retired from the directorship, and has been succeeded by M. I. St. Murat. Vol. XVIII. of the *Analele* of the institute is a publication of nearly 1,000 pages, 4to, containing, in French and Roumanian, the 17th report of the work of the institute (for 1905-06); a study of the climatology of Craiova; memoirs on rainfall, earthquakes and sunshine, and the usual climatological tables. Separate brief reports concerning the hydro-metric and agricultural conditions of January-May, 1907, in Roumania, throw further light on the activities of the Meteorological Institute.

BRIGHT SUNSHINE IN THE BRITISH ISLES

"THE Distribution of Bright Sunshine over the British Isles" is discussed by Richard H. Curtis in *Symons's Meteorological Magazine* for September, 1907, and is accompanied by a chart showing the average annual duration of sunshine. The records used in the preparation of this chart are those of the burning recorders. A few records exceed twenty-five years, and series for shorter periods are available for a large number of stations. The short series have been weighted for the length of period they cover. The number of hours of bright sunshine is indicated by "isohels." In 1891 the London Meteorological Office published Dr. R. H. Scott's "Ten Years' Sunshine in the British Isles." Dr. H. N. Dickson drew the first sunshine map for the British Isles from the data in that paper (*Scot. Geogr. Mag.*, 1893). The *Atlas of Meteorology* (pl. 18) reproduces Dr. Dickson's map.

SYMONS'S METEOROLOGICAL MAGAZINE

THE five-hundredth number of *Symons's Meteorological Magazine* is that for Septem-

ber, 1907. The first number was dated February, 1866, and was published by the late Mr. G. J. Symons. Meteorologists the world over will unite in congratulating Dr. H. R. Mill upon the appearance of No. 500 of this unique magazine, and in wishing him continued success in carrying on his important work for British meteorology.

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*THE NEW PHILIPPINE MEDICAL SCHOOL
ESTABLISHED BY THE GOVERNMENT
OF THE PHILIPPINE ISLANDS*

THE second annual meeting of the Philippine Islands Medical Association was held in Manila during the early months of 1905, and in the course of the discussions the fact was brought out that the Philippine archipelago has an average of only one physician to every 21,209 of the population, or one to every 430 square miles of territory. The association consequently deemed it its duty to bring this matter forcibly to the attention of the government and to request that some action be taken looking towards the establishment of a permanent and modern medical school in the Philippine Islands. The conditions for the success of such a school were very auspicious, as the Bureau of Science and the Bureau of Health would be able to furnish a number of trained men to take part in the teaching.

As a result of this agitation and also as an expression of an ideal which for some time had been in the minds of the secretary of the interior and of the various directors and members of the large scientific institutions in the Philippines, the United States Philippine Commission on December 1, 1905, passed an act establishing a medical school in the Philippine islands, placing it in charge of a board of control which consists of the secretary of public instruction, the secretary of the interior, one other member of the Philippine Commission and a member to be designated by the governor-general. The dean of the faculty of the school after its establishment also became a member of the board of control. The school is to form a department of the future Philippine University.

The actual work of organization was not undertaken until more than a year after this, one reason for the delay being that other scientific undertakings were in the course of active growth, and the other because much time was necessary to perfect the actual working plans. However, a faculty was finally appointed, including the chairs of chemistry, clinical medicine, tropical medicine, surgery, hygiene, pathology and bacteriology, pediatrics and obstetrics, with associate professors in several of the branches and with assistant professors in charge of anatomy, pharmacology, and physiology. The full professorships of the latter three chairs were left open because it was realized that the three assistants would need to be called from the United States, and it was desired to leave the higher positions open so as to give more opportunity for advancement to the right men. About one third of the faculty consists of natives of the islands, the other two thirds being either government employees or American physicians or surgeons engaged in hospital practise in Manila.

The most serious subjects to consider in planning the work for the first year were the nature of the entrance examinations to be required, the number of years of study and the feasibility of admitting students to advanced classes who were either graduates of the present medical school of the University of Santo Tomas or who had taken one or more years of medical study therein. These questions present different phases than they do in the United States, as in America there already are a sufficient number of medical schools of good standing, and no communities are actually suffering from lack of medical attendance; whereas in these islands we must endeavor to furnish reasonably well educated physicians as soon as possible, so that the duty of the faculty is not only to elevate the grade of medical instruction in the Philippine Islands, but also as rapidly as may be feasible to fit with at least a fair knowledge of medicine young men who should be able to take their places in the provinces where no medical attendance whatsoever is now possible. A